

**ARIZONA GAME AND FISH DEPARTMENT  
HABITAT PARTNERSHIP PROGRAM  
HABITAT ENHANCEMENT AND WILDLIFE MANAGEMENT PROPOSAL**

**PROJECT INFORMATION**

**Project Title:** Big Chino Pronghorn Movements GPS Collar Refurbishment

**Project No.**

**Region/GMU:** FOR3, GMU 19B

**HPC:**

**Project Type:** Radio Telemetry Study of Pronghorn Movements

**Project Description:** Refurbishment of GPS collars to be put on adult pronghorn (mainly females) in the Big Chino Valley area of GMU 19B and surrounding areas (17A, 17B, and 18B) for a 2-yr study to document movement patterns among GMUs and to identify key areas (wintering, fawning, movement corridors, etc.). This study is a continuation of a statewide investigation of pronghorn movements and identification of movement barriers statewide. Previous work has been completed in GMUs 19A and 21 (1992), GMUs 7E and 2A (1994), GMUs 9 and 10 (1999), GMUs 7W and 9 (1999), GMUs 6B, 8, and 19A (2004), GMU 5A-B (ongoing), and GMU 7E-W (started in 2007 as part of a highway impacts study). This is a continuation by moving westward. AZGFD Research Branch already has a number of GPS collars available to refurbish for an October 2007 capture event.

Also, secondarily to document mortality rates of female pronghorn in GMU 19B and identify cause-specific mortality factors to improve AZGFD ability to model pronghorn population dynamics.

**Wildlife Species to Benefit:** Pronghorn Antelope

**Possible Funding Partners:** W78R Research Branch continuing study in place, under Commission approved Pronghorn Movement Study in July 2005; USFS Prescott National Forest (provided 5 collars to refurbish); The Nature Conservancy (M.S. Graduate Student already in place); private landowners

**Implementation Schedule:**

**Beginning:** July 1, 2007

**Completed:** June 30, 2010

**PROJECT FUNDING**

**SBG Funds Requested:** \$20,000 (For refurbishing 10 store-on-board collars; AZGFD and USFS already have GPS collars to refurbish; and appx. \$5,000 for helicopter capture costs)

**Cost Share Funds:** \$180,000 W78R (60,000 for FY2008; 60,000 for FY2009; 60,000 for FY2010 in W78R)

**Total Project Costs:** \$200,000 (does not include graduate student and possible USFS, TNC, landowner funds, which would be used to increase the sample size to >12 GPS collared animals; W78R will refurbish 2 this current year)

<b>PARTICIPANT INFORMATION</b>	
<b>Applicant:</b> Richard Ockenfels, Research Branch (please print) <b>Telephone:</b> 602-789-3379	<b>Address:</b> Arizona Game and Fish Department Research Branch 2221 W. Greenway Road Phoenix, AZ 85023
<b>AGFD Contact and Phone No.</b> <b>(If applicant is not AGFD personnel)</b>	
<b>Coordinated with:</b> FOR3 (Finley, Ough, Poppenberger, Tucker, Posey, Pebworth); TNC (Reading, Campbell); Antioch Graduate College (Davis); USFS (Schuhardt, Bright); Game Branch (Wakeling, Ordway, Disney, Gregory); AAF (Brown, Unmacht, Laird, Guevin, Mehen, Supplee); SSDV Access Program (Palazzolo)	<b>Date:</b> 2006, 2007
<b>Applicant's signature:</b> Richard Ockenfels	<b>Date:</b> February 26, 2007

**SEND COMPLETED APPLICATIONS TO:**

**Game Branch**  
**2221 W. Greenway Rd.**  
**Phoenix, AZ 85023**  
[mdisney@azgfd.gov](mailto:mdisney@azgfd.gov)

**NEED STATEMENT/PROBLEM ANALYSIS:**

Since 1983, the Department has been radiomarking adult pronghorn across Arizona to identify herd boundaries and barriers to movement. Most previous studies have concentrated around Flagstaff or for Sonoran pronghorn in southwestern Arizona, and also with 2 studies in the eastern part of the state. In order to continue to investigate additional GMUs, future efforts need to move either westward or eastward. GMU 19B is the next logical study site westward, based on the purchase of the Big Chino Valley by the City of Prescott for future water rights. The Big Chino Valley is the last large block of open space in the Prescott area. Highway 89 traffic volume is increasing and may present a future barrier to movement to the east, whereas Williamson Valley Road traffic is also increasing on the western edge of GMU 19B. The Outer Loop Road in Chino Valley may have fragmented the Deep Well Ranch south of Chino Valley from the rest of the unit. Region III, Prescott National Forest, the City of Prescott, and The Nature Conservancy need input into conservation easement areas and where to concentrate management strategies to improve pronghorn management.

Information on movements among the various GMUs west of Hwy 89 is needed to verify the current hunt structure of pronghorn in Region III.

This study will provide AZGFD, USFS, and private landowners, as well as other potential partners, information on herd interchange among various GMUs, document movement corridors, identify key wintering and fawning areas, and identify movement barriers.

This proposal ties to the *WL2012 Strategic Plan* under the Wildlife Strategic Theme: #1. Strategic Issues Affecting Resource Management. In order to meet some of the 5 Resource Management Objectives, such as #1 and #2, and

to provide baseline data to establish guidelines for the management of wildlife and their habitat, collecting radiotelemetry data on pronghorn is essential. To meet the issues head-on, information needs to be collected and analyzed to ensure better decision-making to maintain movement corridors, identify barriers to movements, and identify and maintain key areas, such as those used for fawning.

This proposal is also tied to Theme #2, Strategic Issues Affecting Wildlife Recreation. Collaboration with private landowners has been hampered by lack of involvement from the Big Chino landowners in discussing conservation strategies with such partners as The Nature Conservancy. The proposed research is Tier #2 of a 3 tiered plan by The Nature Conservancy to improve the use of conservation strategies such as land easements by local landowners. Tier #1, a graduate student assessing the long-term viability of the area, is already underway, and that research has been partially funded by AAF and AZGFD, as partners with TNC.

The *Arizona Statewide Pronghorn Operational Plan* notes that pronghorn once were more numerous and widespread, with free interchange among groups, but today most are relegated to isolated populations. The goal of the long-term, statewide research project that is proposal is a part of addresses identifying which populations are still connected to each other via various movement corridors and what barriers create the fragmentation. It is recognized that “each population has its own management issues and challenges”, as each previous study has documented and made management recommendations to overcome. The area of concern has collectively been termed the “Central Yavapai County Herd” in the Operational Plan, with the exception of GMU 19A. GMU 19A had already been part of several recent research studies. It is estimated that around 10-15% of the statewide pronghorn population occurs in the proposed study area.

## **PROJECT OBJECTIVES:**

- Identify pronghorn movement patterns and barriers
- Identify movement corridors among GMUs
- Identify key wintering and fawning areas
- Provide recommendations for pronghorn management in Big Chino area
- Provide outreach on pronghorn issues in Prescott and Big Chino area

## **PROJECT STRATEGIES:**

- Refurbish ~10 Store-On-Board
- Capture >10 pronghorn females (based on number of other funds to refurbish more collars) in October-November period
- Locate monthly with aerial telemetry techniques for length of collar life, which is expected at 2 years
- Investigate mortality signals as needed
- Update data from GPS collars into GIS system to analyze data
- Write reports and manuscripts
- Disseminate information via talks, presentations, and popular articles

## **PROJECT LOCATION:**

Capture efforts will center on the Big Chino Valley area of GMU 19B, based on landowner permission (Map #1). Effort might occur on USFS lands in neighboring GMUs based on possible funding. It is anticipated

that pronghorn will move among GMUs 19B, 17A, 17B, and 18B, but not cross over into 19A.

T18N-T21N; R3W-R5W will be the core area, but could range from T18N to T22N; R2W to R6W, based on permission of landowners in area to conduct capture operations on private lands as well as State Trust Lands.

**LAND OWNERSHIP AT PROJECT SITE (Please state specifically if PRIVATE PROPERTY and provide landowner's name):**

- K-4 Ranch – Key area
  - John Kieckhefer 928-636-2258
  - His son, Johnny is now managing most of the ranch, TNC is meeting with him tomorrow, I believe
- JWK Foundation – Key area
  - J W Kieckhefer Foundation, P.O. Box 1151, Prescott, AZ 86302
  - TNC has been in contact with them for a grassland burn
- City of Prescott – nice to use but presently small area
  - Jim Holt, Project manager for City of Prescott
- New owners of CV/CF Ranch – Key area
  - do not know yet- TNC knows
- T-2 –small area
  - Charney 1996 Trust, 2820 Jacks Valley Rd, P.O. Box 454, Genoa, NV 89411
  - Manager Tom Stuart, P.O. Box 375, Paulden AZ 86334 928-636-2271
- Lobo Ranch –small area
  - Owner Ed Hitchcock 928-636-2282 (ranch phone)
  -

To the north:

- Campbell Ranch – key area south of I-40 and East of Seligman  
Joe Campbell  
P.O. Box 159  
Seligman, AZ 86337  
928-422-3311

**IF PRIVATE PROPERTY, IS THERE A STEWARDSHIP AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT?**

No agreements in place. Will be coordinating areas to capture in spring and summer as study progresses. Fall back is USFS lands and whatever landowner grants permission. Research and TNC haven't been able to get permission until a more solid study proposal in place. If all landowners refuse, study on pronghorn will likely switch to another area of the state with more public lands available.

**HABITAT DESCRIPTION:**

Big Chino Valley is a wide open valley of Plains Grassland vegetative community. Predominantly grama grass valley with interspersed agricultural lands bordered by Pinon-Juniper community to the north on Black Mesa and to the west in the Juniper Mountains. Grasslands are interspersed with pockets of juniper woodlands, varying in density from open savanna to dense woodlands. Big Chino is the largest remaining

contiguous grassland in the Prescott area.

Big Chino Valley lies between 4,500 and 5,000 ft, with buttes rising up to 5,758 ft (Simmons Peak in the Sullivan Buttes range). The Juniper Mountains to the west rise to nearly 7,000 ft, whereas the Big Black Mesa area is a large escarpment of around 5,500 ft.

Scattered human developments occur at the eastern edge of Big Chino Valley, near Paulden. A few ranches occur within the valley. More development is occurring along Williamson Valley Road, along the southern edge of GMU 19B. It is anticipated that development will continue to march northward in the near future.

#### **ITEMIZED USE OF FUNDS:**

- ~\$15,000 to cover costs to refurbish 10 GPS store-on-board collars (collars already purchased by AZGFD, used in previous pronghorn, bighorn sheep, and elk studies).
- ~\$5,000 to cover part of costs incurred by helicopter rental for actual capture operation

#### **LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:**

- TNC Verde Program: TNC is providing in-kind support for Antioch Graduate College M.S. Candidate Lara Davis; use of office, office equipment, landowner coordination, coordination with Prescott College and Yavapai College for use of their facilities for graduate student. Graduate student (Tier #1) is already using GIS facilities at the colleges.
- USFS Prescott National Forest: Chino Valley R.D. and PNF are looking for available funds to pay for or cost share refurbishment of 5 GPS collars they previously purchased for GMU 6B-8-19A work.
- AZGFD Field Operations: FOR3 will assist on the capture event in fall 2007. And, staff will assist on monitoring collared animals for possible mortalities, investigating mortality events. FOR2 or FOR4 will provide netgunner expertise for capture event.
- Research Branch: W78R Pittman-Robertson funded research study of pronghorn movements in Arizona will provide logistics, oversee the study, order the collar work, collect the field data, analyze the data, and disseminate the results. Overall coordination will be by Research Branch.

#### **PROJECT MONITORING PLAN:**

Collars will be taken to vendor in July/August 2007 for refurbishing, for a September 30, 2007 delivery date. Special Big Game Tag Funds will be expended by December 2007. Research Branch will prepare a detailed study plan outlining protocols for the 2-yr study. Basically, capture will occur in Oct-Nov period. Regular monthly aerial telemetry flights will be undertaken to monitor collars for possible mortalities and to check on collars and animal status. Flights will go for 2 years, until September 2009. Collars will be retrieved in October 2009. Data will be uploaded to a GIS system in October 2009, or whenever collars are retrieved from a mortality event. Data will be analyzed from October until June 2010. Report writing will begin in October 2009 and continue until final report/manuscripts are written.

#### **PROJECT MAINTENANCE:**

N/A

**PROJECT COMPLETION REPORT TO BE FILED BY: September 30, 2010.**

**WATER DEVELOPMENT PROJECTS (see attached worksheet):**

N/A

**TREE SHEARING (AGRA-AXE, PUSH) PROJECTS (see attached worksheet):**

N/A

**PROJECT COMPLETION REPORT**

(Please complete the report and forward to Game Branch  
within 30 days of the completion of the project. THANK YOU!)

**Project Title: : Big Chino Pronghorn Movements GPS Collar Refurbishment**

**Project number: \_\_\_\_\_**

**GMU: 19B**

**Project Coordinator (IF NOT APPLICANT): \_\_\_\_\_**

**Agency: Arizona Game and Fish Department**

**Address: 2221 W. Greenway Road**

**Phoenix AZ 85023**

**Phone: 602-789-3379**

**Email: rockenfels@azgfd.gov**

**Project Completion Date September 30, 2010**

**COOPERATING AGENCIES AND/OR CONSERVATION GROUPS, LANDOWNERS, ETC.:**

**PROJECT ACCOMPLISHMENTS:**

**PROJECT RESULT ACTIONS:**

(List practices implemented as a result of project, i.e. area rested from grazing for 2 yrs., season recommendations revised based on new distributions, data received from project, etc.)

**COMMENTS ABOUT THE PROJECT:**

(Please list updates, reports, concerns, suggestions)

**MAINTENANCE/MONITORING SCHEDULE (from this point on): WHO and WHEN?**

**PHOTO:** (Please attach)

**MAIL COMPLETED PROJECT COMPLETION FORM TO:**

**Game Branch**

**Arizona Game and Fish Department**

**2221 W. Greenway Road**

**Phoenix, AZ 85023**

mdisney@azgfd.gov